

REMARKS

Claims 2, 3, 5 and 6 are pending in this application. By this Amendment, claim 2 has been amended. The applicants respectfully submit that no new matter has been added. It is believed that this Response is fully responsive to the Office Action dated July 25, 2002.

Claim Objection:

Claim 2 stands objected to in item 1 of the outstanding Action due to a minor informality. Claim 2 has been amended to correct such informality and therefore withdrawal of this objection is respectfully solicited.

As to the Merits:

As to the merits of the case, the Examiner relies on the newly cited reference of Takagi et al. (U.S. Patent No. 5,073,710) in setting forth the following rejection:

claims 2, 3, 5, and 6 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Citizen (JP 4-120322, of record) in view of Okutani et al. (of record) and Takagi et al.

This rejection is respectfully traversed.

Significant structural arrangements of the Applicants' claimed invention include that the light receiving windows are a group of light receiving windows, consisting of a plurality of light receiving windows disposed on the same radius at the same phase, and the total sum of the opening areas of light receiving windows of the same phase and the total sum of light receiving windows of the other phase are set to be equal to each other.

With regard to the primary reference of Citizen, the Examiner acknowledges that:

Citizen does not seem to further specifically disclose the light receiving windows or portions further consisting of groups of a plurality of light receiving windows disposed on the same radius at the same phase, wherein the total sum of open areas of windows of one phase is same as the other phase.¹

In order to overcome the above-noted drawbacks and deficiencies of the primary reference of Citizen, the Examiner relies on the secondary reference of Takagi and asserts the following:

Takagi et al. further teaches the light receiving windows or portions (Fig. 19, #66) further consisting of groups of a plurality of light receiving windows disposed on the same radius at the same phase (Fig. 20, #66A), wherein the total sum of open areas of windows of one phase is same as the other phase (Fig. 20, #66B and 66A).²

¹Please see, lines 1- 4, page 3 of the Action.

²Please see, lines 10 - 13, page 3 of the Action.

However, the Examiner is mis-characterizing the teachings of Takagi, since spatial filters 66 of Figs. 19 and 20 do not constitute a pattern of light receiving windows on the rotary encoder disc 62. Instead, the spatial filters 66 are formed on the mask plate 65.

That is, according to Takagi, "A stationary mask plate 65 is disposed in the co-image plane of the interference fringe and the reference spot. The mask plate 65 is formed with a plurality of spatial filters 66 having a spatial period corresponding to a pitch of the interference fringe."³

Takagi further discloses, "A one dimensional diffractive grating or pattern 63 is formed along an annular periphery of the encoder disc 62. The grating 63 is composed of slits arranged along the displacement direction at a given pitch and continuously diffract the incident light beam to form an interference image a given distance from the disc."⁴

Thus, from the above, it is clear that pattern 63 is formed on the encoder disc 62 whereas spatial filters 66 are formed on mask plate 65.

³Please see, lines 64 - 69, column 17 of Takagi.

⁴Please see, lines 42 - 48, column 17 of Takagi.

Thus, for at least these reasons, it is respectfully asserted that the prior art fails to teach or suggest recitations of claims 2, 3, 5 and 6, and request that the Examiner allow these claims, along with the entire application, to issue. Accordingly, withdrawal of the rejection of claims 2, 3, 5 and 6 under 35 U.S.C. §103(a) is respectfully solicited.

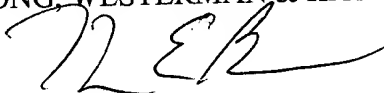
If, for any reason, it is believed that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up copy version of the changes made to the claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. The fees for such an extension or any other fees which may be due with respect to this paper, may be charged to Deposit Account No. 01-2340.

Respectfully Submitted,

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Enclosures: Version with markings to show changes made
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In The Claims:

Claim 2 has been amended as follows:

2. (Amended) An encoder having a code pattern provided on a rotary disk, which detects the rotation speed and rotational position of the rotary disk by receiving light coming from a light emitting element and transmitted through or reflected from said code pattern by [said] a light receiving element; wherein a fixed slit which is disposed between said rotary disk and said light receiving element so that a plurality of light receiving windows through which light reflected from or transmitted through the code pattern passes is disposed so as to have a difference in phase at different positions in the radial direction of the rotary disk; the length of said light receiving windows in the radial direction is set so as to gradually become shorter from the inner peripheral side toward the outer peripheral side; and the opening area of said light receiving windows at the inner peripheral side of said fixed slit is set to be equal to that at the outer peripheral side, wherein said light receiving windows are a group of light receiving windows, consisting of a plurality of light receiving windows disposed on the same radius at the same phase, and the total sum of the opening areas of light receiving windows of the same phase and the total sum of light receiving windows of the other phase are set to be equal to each other.